

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (currently amended): ~~Method~~ A method for reducing echo signals in telecommunications systems for the transmission of wanted acoustic signals, ~~particularly human speech,~~ in which the presence of echo signals is detected and/or predicted and the detected and/or predicted echo signals are subsequently suppressed or reduced, comprising:

~~characterized in that~~

measuring and/or estimating continuously the power value of the a noise level N in the a  
~~currently used telecommunications channel is continuously measured and/or estimated,~~ and

setting continuously and automatically a that the degree of reduction of the echo signals  
to be currently effected ~~is set continuously and automatically,~~ in dependence on the ~~current~~ noise  
level N of the current channel, according to a predefined function  $h(N)$ ,

wherein the function  $h(N)$  increases as N increases.

2. (currently amended): ~~Method~~ The method according to Claim 1, ~~characterized in that the function  $h(N)$  increases as N increases,~~

wherein whereby  $h(N \ll 0 \text{ dB}_m) = h_{\min} = \text{const. a constant, and}$

wherein  $h(N \approx 0 \text{ dB}_m) = h_{\max} > h_{\min}$ .

3. (currently amended): ~~Method~~ The method according to Claim 2, ~~characterized in that:~~

wherein  $-50 \text{ dB} < h_{\min} < -20 \text{ dB}$ , ~~preferably~~  $-45 \text{ dB} \leq h_{\min} \leq -35 \text{ dB}$ , and

wherein  $-20 \text{ dB} < h_{\max} < 0 \text{ dB}$ , ~~preferably~~  $-12 \text{ dB} \leq h_{\max} \leq -6 \text{ dB}$ .

4. (currently amended): ~~Method according to Claim 1, characterized in that~~ A method for reducing echo signals in telecommunications systems for the transmission of wanted acoustic signals in which the presence of echo signals is detected and/or predicted and the detected and/or predicted echo signals are subsequently suppressed or reduced, comprising:

measuring and/or estimating continuously the power value of a noise level N in a currently used telecommunications channel; and

setting continuously and automatically a degree of reduction of the echo signals to be currently effected, in dependence on the noise level N of the current channel, according to a predefined function  $h(N)$ ,

wherein the predefined function  $h(N)$  is a function  $k(S/N)$ , which depends on ~~the~~ a signal-to-noise ratio, ~~i.e., the quotient  $S/N$ , from the~~ of a power value of ~~the~~ a signal level S of the wanted signals to be transmitted and ~~the~~ a power value of the noise level N, or that

wherein the predefined function  $h(N)$  is a function  $k'(N/S)$ , which depends on the reciprocal,  $N/S$ , ~~of the signal to noise ratio, of this quotient, preferably or which depends on~~  $N/(N+S)$ .

5. (currently amended): ~~Method~~ The method according to Claim 1, ~~characterized in that, in addition to the recognition and reduction of echo signals, further comprising:~~  
suppressing or reducing noise signals are also suppressed or reduced.

6. (currently amended): ~~Method according to Claim 5, characterized in that~~ A method for reducing echo signals in telecommunications systems for the transmission of wanted acoustic signals in which the presence of echo signals is detected and/or predicted and the detected and/or predicted echo signals are subsequently suppressed or reduced, comprising:  
measuring and/or estimating continuously the power value of a noise level N in a currently used telecommunications channel;  
setting continuously and automatically a degree of reduction of the echo signals to be currently effected, in dependence on the noise level N of the current channel, according to a predefined function  $h(N)$ ;  
suppressing or reducing noise signals; and  
setting continuously and automatically ~~the~~ a degree of reduction of the noise level N to be currently effected ~~is set continuously and automatically~~, in dependence on the current noise level N, according to a second predefined function  $f(N)$ , ~~or~~  $g(S/N)$ , ~~or~~  $g'(N/S)$ , preferably ~~or~~  $g'(N/[N+S])$ .

7. (currently amended): ~~Method~~ The method according to Claim 6, ~~characterized in that, for  $N \ll 0$  dBm, wherein~~ the functions  $f(N)$ ,  $g(S/N)$ ,  $g'(N/S)$  or  $g'([N/N+S])$  each

~~begin~~comprise, respectively, ~~with a constant maximum value  $f_{max}$ ,  $g_{max}$  or  $g'_{max}$ , which~~  
~~are approximately equal to 0, for  $N \ll 0$  dBm  $\approx 0$ , fall to, in particular,~~

a ~~settable value, preferably a minimum value  $f_{min}$ ,  $g_{min}$  or  $g'_{min}$ , respectively, in~~  
the range between  $N = -15$  dBm to  $-10$  dBm, ~~preferably for  $N$  or  $S/N \approx -12$  dBm, and~~

~~then rise, to  $N \approx 0$  dBm, to a constant value  $f_0 > f_{min}$  or  $g_0 > g_{min}$  or  $g'_0 > g'_{min}$ ,~~  
respectively, for  $N$  approximately equal to 0 dBm,

wherein  $f_0, g_0, g'_0 < 0$ , and

wherein  $f_0 > f_{min}$ ,  $g_0 > g_{min}$  and  $g'_0 > g'_{min}$ .

8. (currently amended): Method according to Claim 7, characterized in that:

$f_0 \leq -5$  dB,  $g_0 \geq -10$  dB, ~~preferably  $f_0 \leq -6$  dB,  $g_0 \geq -8$  dB, and~~

$f_{min} \leq -20$  dB, and  $g_{min} \geq -30$  dB, ~~preferably  $f_{min}, g_{min} \approx -25$  dB.~~

9. (currently amended): ~~Method~~ The method according to Claim 1, ~~characterized in~~  
~~that the function  $h(N)$ , at least partially, and preferably in all sub-sections, runs linearly~~wherein a  
portion of the function  $h(N)$  is linear with  $N$ .

10. (currently amended): ~~Method~~ The method according to Claim 4, ~~characterized~~  
~~in~~wherein a portion of the functions  $k(S/N)$  and  $k'(N/S \text{ or } N/(N+S))$ , at least partially, and  
preferably in all sub-sections, run linearly is linear with  $S/N$  and  $N/S$  or  $N/(N+S)$ , respectively.

11. (withdrawn): Method according to Claim 1, characterized in that the function  $h(N)$  is constructed of polynomials and runs over  $N$  as an asymmetric bell-shaped curve.

12. (withdrawn): Method according to Claim 4, characterized in that the functions  $k(S/N)$  and  $k'(N/S)$  are constructed of polynomials and run over  $S/N$  and  $N/S$  respectively as asymmetric bell-shaped curves.

13. (withdrawn): Method according to Claim 1, characterized in that the function  $k(N)$  is selected so that the reduction of the noise level  $N$  is auditorially adapted according to the psychoacoustic mean values of the human auditory spectrum.

14. (withdrawn): Method according to Claim 4, characterized in that the functions  $k(S/N)$  and  $k'(N/S)$  are each respectively selected so that the reduction of the noise level  $N$  is auditorially adapted according to the psychoacoustic mean values of the human auditory spectrum.

15. (currently amended): ~~Method~~ The method according to Claim 1, ~~characterized in that~~ wherein a speech pause detector (SPD) is used for recognition of the noise level  $N$ .

16. (currently amended): ~~Method~~ The method according to Claim 15, ~~characterized in that~~ wherein the power value of the wanted acoustic signals ~~signal~~ to be transmitted is reduced during ~~the~~ speech pauses according to an exponential function.

17. (currently amended): ~~Method according to Claim 5, characterized in that~~ A method for reducing echo signals in telecommunications systems for the transmission of wanted acoustic signals in which the presence of echo signals is detected and/or predicted and the detected and/or predicted echo signals are subsequently suppressed or reduced, comprising:  
measuring and/or estimating continuously the power value of a noise level N in a currently used telecommunications channel;  
setting continuously and automatically a degree of reduction of the echo signals to be currently effected, in dependence on the noise level N of the current channel, according to a predefined function  $h(N)$ ;  
suppressing or reducing noise signals; and  
controlling separately the suppression or reduction of the noise signals and the reduction of the echo signals ~~are controlled separately~~.

18. (withdrawn): Method according to Claim 1, characterized in that an artificial noise signal is also added to the wanted signal during an echo reduction period.

19. (withdrawn): Method according to Claim 18, characterized in that the artificial noise signal comprises a signal sequence which is perceived psychoacoustically as an acoustically comfortable noise (= comfort noise).

20. (withdrawn): Method according to Claim 18, characterized in that the artificial noise signal comprises a noise signal recorded previously during the current telecommunications connection.

21. (new): The method of claim 3, wherein  $-45 \text{ dB} \leq h_{\min} \leq -35 \text{ dB}$  and  $-12 \text{ dB} \leq h_{\max} \leq -6 \text{ dB}$ .

22. (new): The method of claim 4, wherein the predefined function  $h(N)$  is a function  $k'(N/(N+S))$ .

23. (new): The method of claim 6, wherein the second predefined function is  $g'(N/(N+S))$ .

24. (new): The method of claim 7, wherein the settable minimum value is defined at  $N$  or  $S/N$  approximately equal to  $-12 \text{ dBm}$ .

25. (new): The method of claim 8, wherein  $f_0 \leq -6$  dB,  $g_0 \geq -8$  dB and  $f_{\min}$  and  $g_{\min}$  are approximately equal to -25 dB.

26. (new): The method of claim 9, wherein all portions of the function  $h(N)$  are linear with  $N$ .

27. (new): The method of claim 10, wherein all portions of the functions  $k(S/N)$  and  $k'(N/S \text{ or } N/(N+S))$ , are linear with  $S/N$  and  $N/S$  or  $N/(N+S)$ , respectively.